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Editorial

Deep sternal wound infection — still a challenge

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The current issue of the *Journal* presents an excellent article by Baillot et al. on a large collection of data on the infectious complications of sternotomy [1]. This article presents the experience of the Hôpital Laval in Quebec. Over 23 000 patients were entered prospectively in this study over 15 years. Only 1.4% of these patients presented with deep sternal wound infection and is the basis of the study.

Two distinct periods were studied during which the authors note the change in the population sent for open heart surgery: initially more patients were linked to tobacco and cholesterol, but later in the experience, the incidence of tobacco use declined and more elderly patients with metabolic syndromes (e.g., hypertension, obesity and diabetes) were found. At the same time, the authors describe a change in their techniques for solving the challenges of deep sternal wound infection.

Recently, the authors enthusiastically employed a vacuum system with a sophisticated osteosynthesis [2]. This complex technique was applied to the more recent cohort of patients, which were more elderly and presented with metabolic syndrome. They demonstrate the efficacy of this method in shortening the duration of hospitalisation (thus reducing cost and possible psychological trauma to patients). The authors have associated titanium plate fixation of the sternum with pectoralis flap covering as a complement to the vacuum therapy in the last part of their experience and to their stated satisfaction. However, the enthusiasm may be slightly reduced when one reads the very honest second article by the same group of authors in this same issue, on the recurrence of infection after vacuum therapy and titanium plate fixation.

In the second article [2], the authors review the last group of patients from their previous study [1], with what they consider as currently the state-of-the-art treatment. They still find a 10% recurrence of infection, leading to removal of osteosynthesis material, that is, further surgery and further hospital stay. Fortunately, the authors claim that no mortality is associated and, furthermore, no re-opening of the sternum is required for repeated fixation: probably a benefit of the costly titanium system which is not fixed through the sternum, but to the adjoining ribs.

The global conclusion to these findings is that deep sternal infection remains a major challenge to cardiac surgeons and that more than ever preventive measures should be applied as rigorously as possible. Preoperative detection of carriers of *Staphylococcus aureus* should be done on a routine basis and the carriers treated. Operative techniques such as minimal use of bone-wax, skeletonisation of mammary grafts (particularly when both mammary arteries are harvested), closure of pericardium or pleural flaps over the right ventricle and meticulous and tight closure of the sternum should also be mandatory. The influence of even moderate hypothermia on infection should also be discussed as well as the adequate use of the appropriate prophylactic antibiotic in the changing world of bacterial resistance.

Preventive measures and the treatment of deep sternal wound infections are interlinked and awareness of the many facets of the problem to patients, hospitals and staff will, hopefully, lead to a reduction of its incidence in the complex patients seen today.

References

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